DETAILED ACTION

Response to Arguments

Applicant's arguments filed 02/17/2009 have been fully considered but they are not persuasive. Applicant's argument as follows:

- The Examiner has failed to provide an articulated explanation or reasoning as to why one of ordinary skill in the art would combine these references (Schroeder et al. and Garvey).

In response to applicant's argument, the examiner submits that an articulated reason for combining the two references was articulated to applicant and that the bearing of Garvey was indeed directed to channeling frequencies of a magnetic field. For example applicant states in claim 1, "second ferromagnetic material having **magnetic permeability** that is lower than that of the first material and **electrical resistivity** that is higher than that of the first material so as to **encourage the passage of the high frequency magnetic fields** that are generated in the bearing." Garvey states, "In some preferred embodiments of the invention, **electrically conductive material** is arranged within one or more of the interleaved bearing elements to allow the flow of **electric currents** in order to **influence the path of magnetic flux** across at least one interleaf gap. Alternatively, or in addition, **permanent magnet material** may be distributed within the interleaved bearing elements in order **to influence the path of magnetic flux** across at least one interleaf gap." The examiner asserts that the claimed limitations are taught (see Garvey figures 27 and 28). Furthermore, applicant has admitted that Garvey teaches the limitation of claim 1. Applicant has stated,

"Applicant respectfully submits that a combination of Schroeder and Garvey results in, at most, **bands of alternating ferromagnetic material** but not as arranged as is recited in independent claim 1." This is considered an admission of the **claimed** limitation "a **second portion** a **second ferromagnetic material** having magnetic permeability that is lower than that of the **first ferromagnetic material** and electrical resistivity that is higher than that of the first ferromagnetic material so as to encourage the passage of the high frequency magnetic fields" because one has a **first portion** occupied by the **first ferromagnetic material** and a **second portion** occupied by the **second ferromagnetic material** and they are both between the **coil** as required by claim 1 (see Garvey figures 27 and 28).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Garvey (USPGPub2004/0021381 A1).

As to **claim 19**, Garvey teaches an active magnetic radial bearing, comprising: a stator 23; and a rotor 1 configured to rotate relative to the stator, wherein the stator comprises an excitation coil 31, a first stator portion 22 comprising first ferromagnetic

material comprising a stack of ferromagnetic laminations arranged parallel to an axial length of the rotor and a second stator portion 22 comprising a second ferromagnetic material, the excitation coil surrounding the first and second stator portions, the second stator portion being located between the first stator portion and the excitation coil, and wherein the second ferromagnetic material of the second stator portion has a magnetic permeability that is lower than a magnetic permeability of the first stator portion and the second ferromagnetic material has an electrical resistivity that is higher than an electrical resistivity of the first stator portion, and wherein the rotor comprises a first rotor portion and a second rotor portion disposed over an axial length of the rotor and substantially in register with, respectively, the first and second stator portions, and wherein the second rotor portion has a magnetic permeability that is lower than a magnetic permeability of the first rotor portion and the second rotor portion has an electrical resistivity that is higher than an electrical resistivity of the first rotor portion (see Garvey figure 27 and paragraph 0042).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1-6 and 10-12 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Schroeder et al. (5,844,339) in view of Garvey (USPGPub 2004/0021381 A1).

As to **claim 1**, Schroeder et al. discloses an active magnetic bearing with auto-detection of position, the bearing comprising at least first and second opposing electromagnets forming stators disposed on either side of a ferromagnetic body forming a rotor and held without contact between said electromagnets, the first and second electromagnets each comprising a magnetic circuit essentially constituted by a first portion comprising a first ferromagnetic material and co-operating with said ferromagnetic body to define an air gap, together with an excitation coil powered from a power amplifier whose input current is servo-controlled as a function of the position of the ferromagnetic body relative to the magnetic circuits of the first and second electromagnets, the position of the ferromagnetic body being measured from the inductance detected between the two electromagnets in response to simultaneous injection into both opposing electromagnets of a sinusoidal current at a frequency that is greater than the closed loop pass band of the system (see claim 1 Schroeder et al.).

Schroeder et al. fails to teach a bearing being characterized in that the magnetic circuit of each electromagnet further includes a second portion a second ferromagnetic material having magnetic permeability that is lower than that of the first ferromagnetic material and electrical resistivity that is higher than that of the first ferromagnetic material so as to encourage the passage of the high frequency magnetic fields that are generated in the bearing, wherein the second portion is located between the first portion and the excitation coil.

Garvey teaches bearing being characterized in that the magnetic circuit of each electromagnet further includes a second portion a second ferromagnetic material having magnetic permeability that is lower than that of the first ferromagnetic material and electrical resistivity that is higher than that of the first ferromagnetic material so as to encourage the passage of the high frequency magnetic fields that are generated in the bearing, wherein the second portion is located between the first portion and the excitation coil (see Garvey figures 27 and 28).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to modify the bearing of Schroeder et al. with sections of differing magnetic permeabilities and resistivities around the excitation coil, as taught by Garvey, so as to guide the magnetic frequencies in the desired pattern (see Garvey paragraph 0042).

As to **claim 2**, Schroeder et al. in view of Garvey has been discussed above, Re claim 1. Schroeder et al. fails to teach how the magnetic permeability and the electric resistivity characterize the bearing.

Garvey discloses several methods of constructing the interleaving components of a magnetic bearing (see Garvey col 8 line 63). The two main methods are using laminated steel and the use of powder metallurgy composites having high resistivity. It is also known that powder metallurgy is the lesser expensive of the two.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to use a powder metallurgy in view of Garvey, so as to reduce the cost of fabrication.

As to **claim 3**, Schroeder et al. teaches all of the limitations of claim 3 except how the powder forming the low permeability and high resistivity region of the bearing is characterized.

Garvey discloses several methods of constructing the interleaving components of a magnetic bearing. The two main methods are using laminated steel and the use of powder metallurgy composites having high resistivity (see Garvey col 8 line 63). It is also known that powder metallurgy is the lesser expensive of the two processes.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to use a powder metallurgy in view of Garvey so as to reduce the cost of fabrication.

As to **claim 4**, Schroeder et al. in view of Garvey has been discussed above, Re claim 1. Schroeder et al. fails to teach a bearing, characterized in that the ferromagnetic body forming the rotor includes at least one portion of ferromagnetic material having magnetic permeability that is lower and electrical resistivity that is greater than rhea remainder of said body so as to encourage the passage of high frequency magnetic fields, said portion being disposed substantially in register with each of the second portions formed in the electromagnet.

Garvey teaches a bearing, characterized in that the ferromagnetic body forming the rotor includes at least one portion of ferromagnetic material having magnetic permeability that is lower and electrical resistivity that is greater than rhea remainder of said body so as to encourage the passage of high frequency magnetic fields, said

portion being disposed substantially in register with each of the second portions formed in the electromagnet (see Garvey paragraphs 0042 and 0152).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to modify the Schroeder et al. and Garvey bearing with varying thickness of the ferromagnetic laminations as taught by Garvey, so as to guide the magnetic frequencies in the desired pattern (see Garvey 0042).

As to **claim 5**, Schroeder et al. in view of Garvey has been discussed above, Re claim 1. Schroeder et al. fails to teach a bearing, characterized in that the at least one low magnetic permeability and high electrical resistivity portion of the ferromagnetic rotor-forming body is formed by a part made of powder comprising grains of magnetic material that are electrically insulated from one another.

Garvey discloses several methods of constructing the interleaving components of a magnetic bearing. The two main methods are using laminated steel and the use of powder metallurgy composites having high resistivity (see Garvey paragraph 0187). It is also known that powder metallurgy is the lesser expensive of the two processes.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to use a powder metallurgy in view of Garvey so as to reduce the cost of fabrication (see Garvey paragraph 0040).

As to **claim 6**, Schroeder et al. teaches all of the limitations of claim 6 except how the bearing is characterized (see Schroeder et al. claim 1).

Garvey discloses that in preferred embodiments of the invention, materials of different magnetic permeabilities and resistivities are distributed within the bearing

elements help guide a magnetic flux or field pattern in the bearing unit (see Garvey paragraph 0042). It is also known that powder metallurgy is the lesser expensive of the two processes.

Therefore, it would be obvious to a person having ordinary skill in the art, to modify the bearing of Schroeder et al. with sections of differing magnetic permeabilities and resistivities as taught by Garvey, so as to guide the magnetic frequencies in the desired pattern.

As to **claim 10**, Schroeder et al. teaches that the active magnetic bearing is of the axial or radial type but fails to teach how the magnetic permeability and the electric resistivity characterize the bearing (see Schroeder et al. col 7 lines 31-35 and 37-40).

Garvey discloses that in preferred embodiments of the invention, materials of different magnetic permeabilities and resistivities are distributed within the bearing elements help guide a magnetic flux pattern in the bearing unit (see Garvey paragraph 0042).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to modify the bearing of Schroeder et al. with sections of differing magnetic permeabilities and resistivities, in view of Garvey, so as to guide the magnetic frequencies in the desired pattern.

As to **claim 11**, Schroeder et al. teaches that active magnetic bearing is of the axial or radial type but fails to teach how the magnetic permeability and the electric resistivity characterize the bearing (see Schroeder et al. col 7 lines 31-35 and 37-40).

Garvey discloses that in preferred embodiments of the invention, materials of different magnetic permeabilities and resistivities are distributed within the bearing elements help guide a magnetic flux pattern in the bearing unit (see Garvey paragraph 0042).

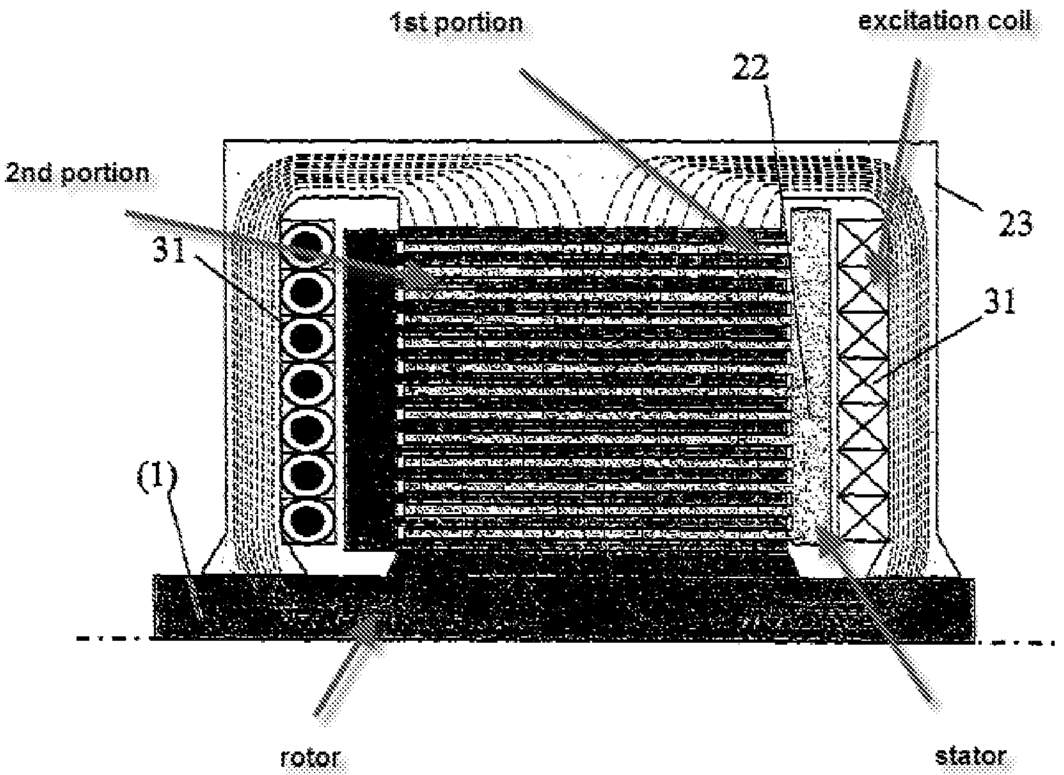
Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to modify the bearing of Schroeder et al. with sections of differing magnetic permeabilities and resistivities, in view of Garvey, so as to guide the magnetic frequencies in the desired pattern.

As to **claim 12**, Schroeder et al. teaches all of the limitations of claim 12 except how the low permeability high resistivity portion of the rotor is formed.

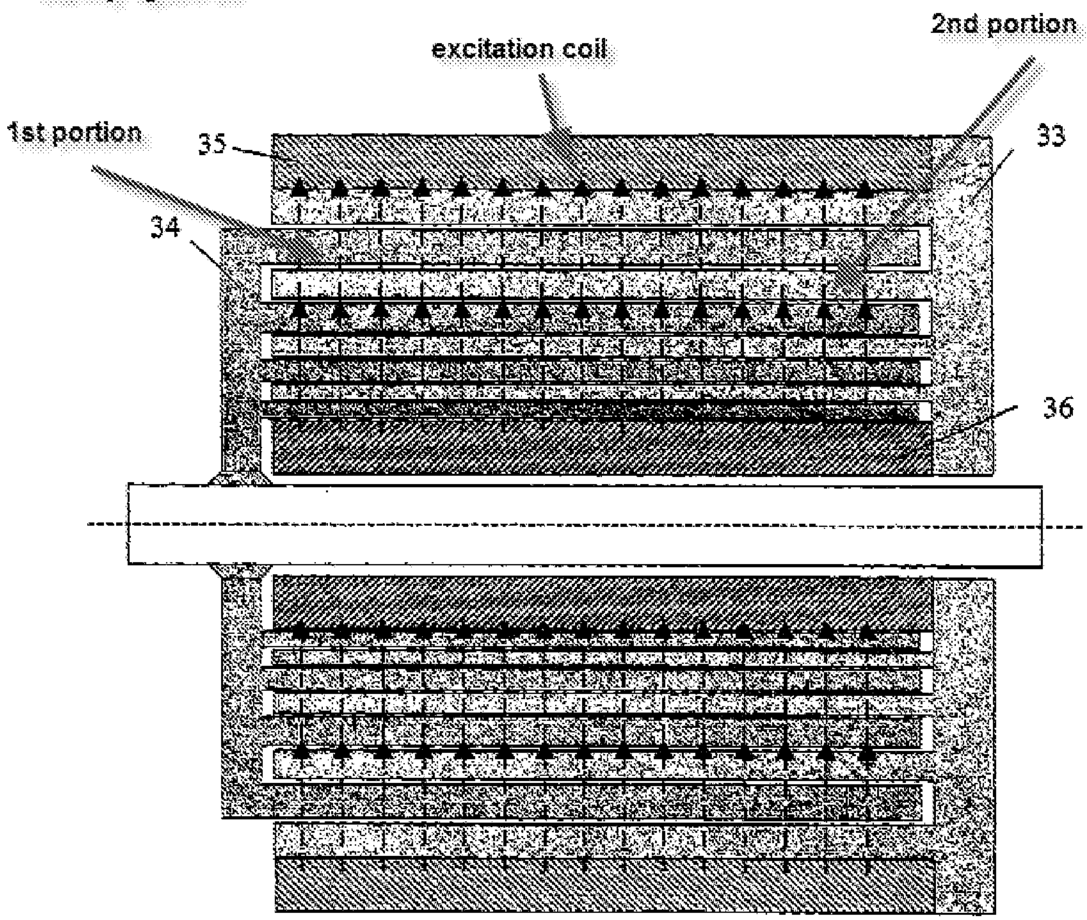
Garvey discloses that in preferred embodiments of the invention, ferromagnetic materials of different magnetic permeabilities and resistivities are distributed within the bearing elements help guide a magnetic flux pattern in the bearing unit (see Garvey paragraph 0042). Garvey also discloses a method of using powder metallurgy to construct the laminations (see Garvey paragraphs 0057 and 0187).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to modify the rotor of the Schroeder et al. and Garvey bearing with varying thickness of the ferromagnetic laminations that are made using a powder metallurgy technique, so as to reduce the cost of fabrication and guide the magnetic flux or field in the desired pattern (see Garvey paragraphs 0042 and 0057).

Garvey figure 27



Garvey figure 28



Claim 7 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Schroeder et al. (5,844,339) and Garvey (USPGPub2004/0021381 A1) as applied to claim 4 above, and further in view of Meeks (5,216,308).

As to **claim 7**, Schroeder et al. in view of Garvey has been discussed above, Re claim 1. Schroeder et al. fails to teach a bearing, characterized in that the ferromagnetic rotor-forming body includes a stack of ferromagnetic laminations, the laminations present in the low permeability and high resistivity portion each having a thickness that is smaller than a thickness of those other laminations in the stack.

Garvey discloses that in preferred embodiments of the invention, materials of different magnetic permeabilities and resistivities are distributed within the bearing elements help guide a magnetic flux pattern in the bearing unit (see Garvey paragraph 0042).

Meeks discloses an active magnetic bearing with a portion of the rotor formed with ferromagnetic laminations (see Meeks col 7 line 7). Although the laminated stacks in Meeks active bearing are formed of high permeability, the stacks could be formed of ferromagnetic materials of low permeability (see Garvey paragraph 0042). Also by forming the portion of the rotor with varying thickness of the ferromagnetic laminations would also create a desired flux or field pattern (see Garvey paragraph 0042).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to modify the rotor of the Schroeder et al. and Garvey bearing with varying thickness of the ferromagnetic laminations as taught by

and Meeks, so as to guide the magnetic frequencies in the desired pattern (see Garvey paragraph 0042).

Claims 8 and 13 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Schroeder et al. (5,844,339) and Garvey (USPGPub2004/0021381 A1) as applied to claims 1 and 4 above, and further in view of Clark (5,289,066).

As to **claim 8**, Schroeder et al. teaches all of the limitations of claim 8 except how the low permeability of the portion is characterized as far as permeability.

Garvey discloses that in preferred embodiments of his invention, materials of different magnetic permeabilities and resistivities are distributed within the bearing elements help guide a magnetic flux pattern in the bearing unit (see Garvey paragraph 0042).

Clark discloses that all soft magnetic materials should have a magnetic permeability of higher than 50 and it is preferred to have this permeability to be of the range of 100 – 1000 (see Clark col 7 line 30).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made, to modify the bearing of Schroeder et al., second portions each with a magnetic permeability of 100, in view of Garvey and Clark so as to improve upon the effectiveness of passing high frequency magnetic fields (see Garvey paragraph 0042).

As to **claim 13**, Schroeder et al. teaches all of the limitations of claim 13 except how the low permeability and high resistivity region of the bearing is characterized as far as permeability (see Schroeder et al. claim 1).

Clark discloses that all soft magnetic materials should have a magnetic permeability of higher than 50 and it is preferred to have this magnetic permeability to be of the range of 100 – 1000 (see Clark col 7 line 30).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the bearing of Schroeder et al. with a magnetic permeability of 100, in view of Garvey and Clark so as to improve upon the effectiveness of passing high frequency magnetic fields.

Claim 9 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Schroeder et al. (5,844,339) and Garvey (USPGPub2004/0021381 A1) as applied to claim 1 above, and further in view of SKF “Hybrid bearings for electrical machinery” (herein after SKF).

As to **claim 9**, Schroeder et al. teaches all of the limitations of claim how the low permeability and high resistivity portions of the bearing are characterized by a resistivity of 50 ohm meters.

Garvey discloses that in preferred embodiments of his invention, materials of different magnetic permeabilities and resistivities are distributed within the bearing elements help guide a magnetic flux pattern in the bearing unit (see Garvey paragraph 0042).

SKF discloses a hybrid bearing and how its electric resistivity is important to reduce “bearing arc flash damage” (see SKF col 1).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the bearing of Schroeder et al. with second portions each with a resistivity of 50 ohm meters, in view of Garvey and SKF so as to reduce arc flash damage.

Claim 14 and 15 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Schroeder et al. (5,844,339), Garvey (USPGPub2004/0021381 A1) and Meeks (5,216,308) as applied to claim 7 above, and further in view of SKF and Clark (5,289,066).

As to **claim 14**, Schroeder et al. in view of Garvey has been discussed above, Re claim 1. Schroeder et al. fails to teach a bearing, wherein the high resistivity portion and low magnetic permeability portion of the bearing is characterized by a magnetic permeability of 100.

SKF discloses a hybrid bearing and how its electric resistivity is important to reduce “bearing arc flash damage” (see SKF col 1).

Clark discloses that all soft magnetic materials should have a magnetic permeability of higher than 50 and it is preferred to have this permeability to be of the range of 100 – 1000 (see Clark col 7 line 30).

Meeks discloses an active magnetic bearing with a portion of the rotor formed with ferromagnetic laminations (see Meeks col 7 line 7).

Garvey discloses that in preferred embodiments of his invention, materials of different magnetic permeabilities and resistivities are distributed within the bearing elements help guide a magnetic flux pattern in the bearing unit (see Garvey paragraph 0042).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the bearing of Schroeder et al. with a resistivity of 50 ohm meters and a magnetic permeability of 100, in view of Garvey, Meeks, Clark, and SKF, so as to reduce arc flash damage and to improve upon the passing of high frequency magnetic fields through various parts of the bearing (see SKF).

As to **claim 15**, Schroeder et al. teaches all of the limitations of claim 15 except how the high resistivity portion of the bearing is characterized by a resistivity of 100 ohm meters, how low permeability of the portion is characterized, how the low permeability high resistivity portion of the rotor is formed, and how the interleaving components of the bearing are formed and at what magnetic permeability or electric resistivity (see Schroeder et al. col 7 lines 31-35).

SKF discloses a hybrid bearing and how its electric resistivity is important to reduce “bearing arc flash damage” (see SKF col 1).

Clark discloses that all soft magnetic materials should have a magnetic permeability of higher than 50 and it is preferred to have this permeability to be of the range of 100 – 1000 (see Clark col 7 line 30).

Meeks discloses an active magnetic bearing with a portion of the rotor formed with ferromagnetic laminations (see Meeks col 7 line 7).

Garvey discloses that in preferred embodiments of his invention, materials of different magnetic permeabilities and resistivities are distributed within the bearing elements help guide a magnetic flux pattern in the bearing unit (see Garvey paragraph 0042).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the bearing of Schroeder et al. with a resistivity of 50 ohm meters and a magnetic permeability of 100, in view of Garvey, Meeks, Clark, and SKF, so as to reduce arc flash damage and to improve upon the passing of high frequency magnetic fields through various parts of the bearing.

Claims 16 and 17 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Schroeder et al. (5,844,339) in view of Garvey (USPGPub2004/0021381 A1).

As to **claim 16**, Schroeder et al. in view of Garvey has been discussed above, Re claim 1. Schroeder et al. fails to teach a bearing, characterized in that: the first portion is configured with a U-shaped cross-section; and the second portion is positioned within the U-shape of the first portion.

Garvey teaches a bearing, characterized in that: the first portion is configured with a U-shaped cross-section; and the second portion is positioned within the U-shape of the first portion (see Garvey figures 27 and 28).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the bearing of Schroeder et al. with a first portion is configured with a U-shaped cross-section; and the second portion is positioned within the U-shape of the first portion, as taught by Garvey, so as to guide the magnetic frequencies in the desired pattern (see Garvey paragraph 0042).

As to **claim 17**, Schroeder et al. discloses an active magnetic axial bearing, comprising: a rotor formed of a ferromagnetic body; and first and second stators disposed, respectively, on each side of the rotor and each of the first and second stators comprising an <u>excitation coil</u> (see Schroeder et al. claim 1).

Schroeder et al. fails to teach the stators comprising first and second portions comprising, respectively, first and second ferromagnetic material, wherein the second ferromagnetic material has magnetic permeability that is lower than the magnetic permeability of the first ferromagnetic material and the second ferromagnetic material

has electrical resistivity that is higher than that of the first ferromagnetic material, and wherein, in each of the first and second stators, the second portion is located between the first portion and the excitation coil.

Garvey teaches and first and second portions comprising, respectively, first and second ferromagnetic material, wherein the second ferromagnetic material has magnetic permeability that is lower than the magnetic permeability of the first ferromagnetic material and the second ferromagnetic material has electrical resistivity that is higher than that of the first ferromagnetic material, and wherein, in each of the first and second stators, the second portion is located between the first portion and the excitation coil (see Garvey figures 27 and 28).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the bearing of Schroeder et al. with first and second portions comprising, respectively, first and second ferromagnetic material, as taught by Garvey, so as to guide the magnetic frequencies in the desired pattern (see Garvey paragraph 0042).

Claim 18 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Schroeder et al. (5,844,339), Garvey (USPGPub2004/0021381 A1) in view of Foshage (6,770,995 B1).

As to **claim 18**, Schroeder et al. in view of Garvey has been discussed above, Re claim 1. Schroeder et al. fails to teach a bearing, wherein: the rotor comprises first and second rotor portions of ferromagnetic material that has magnetic permeability that is lower than the magnetic permeability of the first ferromagnetic material and that has electrical resistivity that is higher than that of the first ferromagnetic material, wherein each of the first and second rotor portions is disposed substantially in register with a corresponding respective second portion of one of the first and second stators.

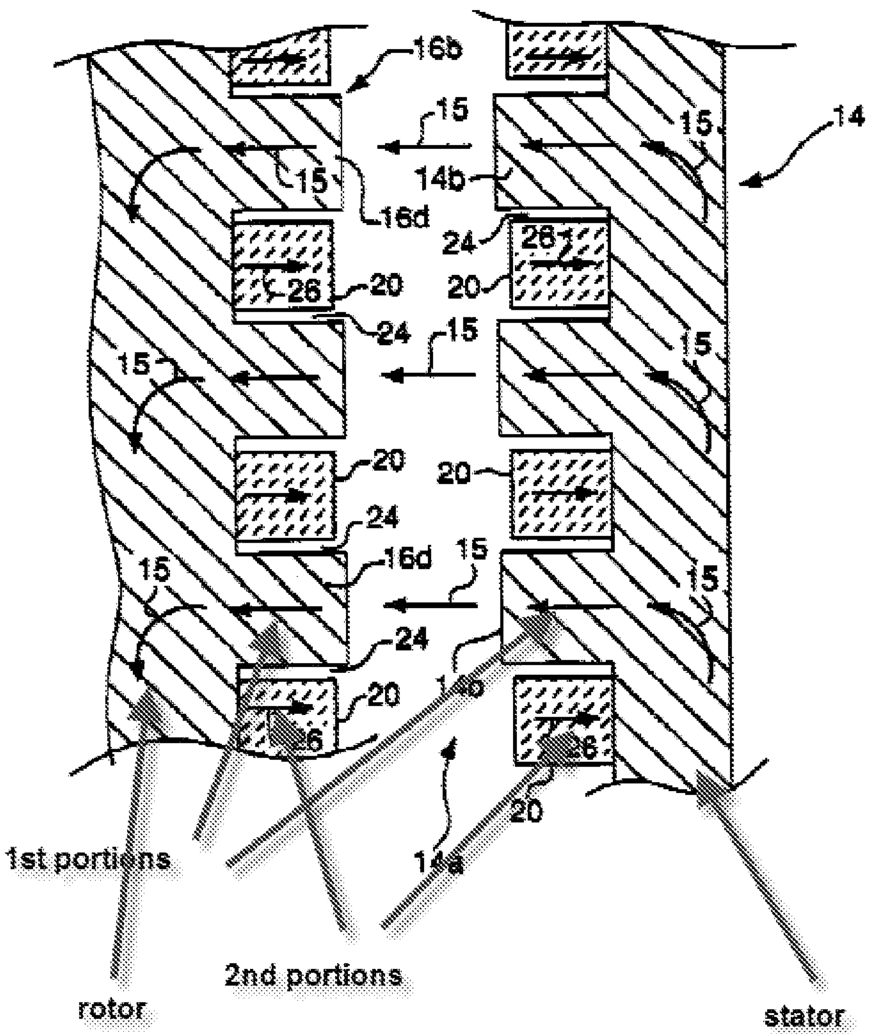
Foshage teaches a bearing, wherein: the rotor 16 comprises first 16 and second 20 rotor portions of ferromagnetic material that has magnetic permeability that is lower than the magnetic permeability of the first ferromagnetic material and that has electrical resistivity that is higher than that of the first ferromagnetic material, wherein each of the first and second rotor portions is disposed substantially in register with a corresponding respective second portion of one of the first and second stators 12 and 14 (see Foshage figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the bearing of Schroeder et al. with a rotor comprising: first and second rotor portions of ferromagnetic material that has magnetic permeability that is lower than the magnetic permeability of the first ferromagnetic material and that has electrical resistivity that is higher than that of the first

ferromagnetic material, wherein each of the first and second rotor portions is disposed substantially in register with a corresponding respective second portion of one of the first and second stators, as taught by Foshage, so as to stabilize the rotor (see Foshage

col 6 lines 30-35).

Foshage figure 3



Claim 20 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Garvey (USPGPub2004/0021381 A1) in view of Foshage (6,770,995 B1).

As to **claim 20**, Garvey has been discussed above, Re claim 1. Garvey fails to teach a bearing, wherein: the first rotor portion comprises a first stack of ferromagnetic laminations arranged parallel to the axial length of the rotor, wherein each lamination in the first stack is of a first thickness; and the second rotor portion comprises a second stack of ferromagnetic laminations arranged parallel to the axial length of the rotor, wherein each of the laminations in the second stack is of a second thickness, wherein the second thickness is smaller than the first thickness.

Foshage teaches a bearing, wherein: the first rotor portion comprises a first stack of ferromagnetic material arranged parallel to the axial length of the rotor, wherein each material in the first stack is of a first thickness; and the second rotor portion comprises a second stack of ferromagnetic material arranged parallel to the axial length of the rotor, wherein each of the material in the second stack is of a second thickness, wherein the second thickness is smaller than the first thickness (see Foshage figure 3).

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the bearing of Garvey with a first rotor portion comprises a first stack of ferromagnetic **laminations** arranged parallel to the axial length of the rotor, wherein each **lamination** in the first stack is of a first thickness; and the second rotor portion comprises a second stack of ferromagnetic **lamination** arranged parallel to the axial length of the rotor, wherein each of the **laminations** in the

second stack is of a second thickness, wherein the second thickness is smaller than the first thickness, as taught by Foshage, so as to stabilize the rotor and reduce eddy current losses (see Foshage abstract).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TERRANCE KENERLY whose telephone number is (571)270-7851. The examiner can normally be reached on Monday through Thursday from 7:30 a.m. to 5:00 p.m. If attempts to reach the examiner by telephone are

unsuccessful, the examiner's supervisor, Quyen Leung can be reached on (571)272-8188.. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/
Supervisory Patent Examiner, Art Unit 2834

/Terrance Kenerly/
Art Unit 2834